

## CLAIMS

What is claimed is:

1. A method of managing allocation of a private home address to a mobile node, comprising:  
receiving a registration request from the mobile node;  
allocating one of a public home address and the private home address to the mobile node based on a predetermined policy;  
if allocated the private home address, further:  
decapsulating a packet from the mobile node to a correspondent node, the packet including a source address and an originating source port;  
modifying the source address and the originating source port if the correspondent node belongs to a different administrative domain; and  
forwarding the packet to the correspondent node.
2. The method according to Claim 1 further comprising creating a binding entry in a binding cache.
3. The method according to Claim 1 wherein modifying the source address and the originating source port comprises replacing the source address with a public routable source address and the originating source port with a source port of the public routable address.
4. The method according to Claim 3 further comprising:  
receiving a response packet from the correspondent node, the response packet including a public routable destination address;  
replacing the public routable destination address in the response packet with the private home address of the mobile node;  
replacing the destination port in the response packet with the originating source port; and  
tunneling the response packet to the mobile node.

5. The method according to Claim 1 wherein allocating the private home address to the mobile node further comprises at least one of allocating an address from a pool of addresses and obtaining the address from a Dynamic Host Control Protocol ("DHCP") server.
6. The method according to Claim 1 wherein decapsulating the packet further comprises intercepting the packet and examining a destination of the packet.
7. An article comprising a machine-accessible medium having stored thereon instructions that, when executed by a machine, cause the machine:  
receive a registration request from a mobile node;  
allocate one of a public home address and a private home address to the mobile node;  
if allocating the private home address to the mobile node, the instructions are further capable of causing the machine to:  
decapsulate a packet from the mobile node to a correspondent node, the packet including a source address and an originating source port;  
modify the source address and the originating source port if the correspondent node belongs to a different administrative domain; and  
forward the packet to the correspondent node.
8. The article according to Claim 7 wherein the instructions, when executed by the machine, further create a binding entry in a binding cache.
9. The article according to Claim 7 wherein the instructions, when executed by the machine, further modify the source address and the originating source port by replacing the source address with a public routable source address and the originating source port with a source port of the public routable address.
10. The article according to Claim 9, wherein the instructions, when executed by the machine, further cause the machine to:

receive a response packet from the correspondent node, the response including a public routable destination address;  
 replace the public routable destination address in the response packet with the private home address of the mobile node;  
 replace the destination port in the response packet with the originating source port; and  
 tunnel the response packet to the mobile node.

11. The article according to Claim 7 wherein the instructions, when executed by the machine, further cause the machine to allocate the private home address to the mobile node by at least one of allocating the private address from a pool of addresses and obtaining the address from a Dynamic Host Control Protocol ("DHCP") server.
12. The article according to Claim 7 wherein the instructions, when executed by the machine, further cause the machine to decapsulate the packet further by intercepting the packet and examining a destination of the packet.
13. A home agent for managing allocation of a private home address to a mobile node, comprising:  
 a private interface capable of receiving a registration request from the mobile node;  
 a processing module capable of allocating one of a public home address and the private home address to the mobile node, wherein if allocating the private home address, the processing module is further capable of decapsulating a packet from the mobile node to a correspondent node, the packet including a protocol identifier, a source address and an originating source port, and modifying the source address and the originating source port if the correspondent node belongs to a different administrative domain; and  
 a public interface capable of forwarding the packet to the correspondent node.

14. The home agent according to Claim 13 further comprising a binding table, and wherein the processing module is further capable of creating a binding entry in the binding table.
15. The home agent according to Claim 13 wherein the processing module is further capable of modifying the source address and the originating source port by replacing the source address with a public routable source address and the originating source port with a source port of the public routable address.
16. The home agent according to Claim 15 wherein the public interface is further capable of receiving a response packet from the correspondent node, the response including a public routable destination address.
17. The home agent according to Claim 16 wherein the processing module is further capable of replacing the public routable destination address in the response packet with the private home address of the mobile node and replacing the destination port in the response packet with the originating source port.
18. The home agent according to Claim 17 wherein the private interface is further capable of tunneling the response packet to the mobile node.
19. The home agent according to Claim 13 wherein the processing module is further capable of allocating the private home address to the mobile node by at least one of allocating the private home address from a pool of addresses and obtaining the private home address from a Dynamic Host Control Protocol ("DHCP") server.
20. The home agent according to Claim 13 wherein the processing module is further capable of decapsulating the packet by intercepting the packet and examining a destination of the packet.
21. A system for routing a packet, comprising:

a mobile node capable of generating a registration request; and  
a home agent coupled to the mobile node, the home agent capable of allocating one of a public home address and a private home address to the mobile node, wherein if allocating the private home address, the home agent is further capable of decapsulating a packet from the mobile node to a correspondent node, the packet including a protocol identifier, a source address and an originating source port, modifying the source address and the originating source port if the correspondent node belongs to a different administrative domain, and forwarding the packet to the correspondent node.

22. The system according to Claim 21 wherein the home agent is further capable of creating a binding entry in a binding cache.
23. The system according to Claim 21 wherein the home agent is further capable of modifying the source address and the originating source port by replacing the source address with a public routable source address and the originating source port with a source port of the public routable address.
24. The system according to Claim 23 wherein the home agent is further capable of receiving a response packet from the correspondent node, the response packet including a public routable destination address, replacing the public routable destination address in the response packet with the private home address of the mobile node, replacing the destination port in the response packet with the originating source port, and tunneling the response packet to the mobile node.
25. The system according to Claim 21 wherein the home agent is further capable of allocating the private home address by at least one of allocating the private home address from a pool of addresses and obtaining the private home address from a Dynamic Host Control Protocol ("DHCP") server.

26. The system according to Claim 21 wherein the home agent is further capable of decapsulating the packet by intercepting the packet and examining a destination of the packet.